

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 110075701	<b>FOR FURTHER ACTION</b> See Form PCT/IPEA/416	
International application No. PCT/SE2003/001914	International filing date ( <i>day/month/year</i> ) 09-12-2003	Priority date ( <i>day/month/year</i> ) 13-12-2002
International Patent Classification (IPC) or national classification and IPC G01S 13/88, G01V 3/12		
Applicant MALÅ GEOSCIENCE FÖRVALTNING AB et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
  - a. ☐ (*sent to the applicant and to the International Bureau*) a total of \_\_\_\_\_ sheets, as follows:
 

☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).  
☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
  - b. ☐ (*sent to the International Bureau only*) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:
- |                                     |              |   |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report   |
| <input type="checkbox"/>            | Box No. II   | Priority  |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited   |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application  |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application   |

Date of submission of the demand  15-06-2004	Date of completion of this report  31-08-2004
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer  Ender Dag /itw Telephone No. +46 8 782 25 00

**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))  
☐ publication of the international application (under Rule 12.4)  
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☒ the international application as originally filed/furnished

☐ the description:

pages \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ the claims:

pages \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ as amended (together with any statement) under Article 19

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ the drawings:

pages \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/figs \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/figs \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	<u>1-5</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-5</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-5</u>	YES
	Claims		NO

**2. Citations and explanations (Rule 70.7)****Documents cited in the International Search Report**

D1: US 6388629 B1

D2: US 4967199 A

Document D1 discloses a ground penetrating antenna apparatus and method provided for locating underground objects via radar, sonar, or similar methods. The apparatus includes one or more antennas that are rotatably affixed to support extensions that also rotate, but about an axis that is different from each of the antenna axes. For transferring signals between the transmitter and receiver units and the A/D converter in the sampler unit, the apparatus comprises a slip-ring arrangement that acts between the antennas and the other units contained in the apparatus (see whole document).

Document D2 discloses a mobile ground probing radar locating buried pipes and cables. The radar uses rotating microwave antenna mounted on manually pushed trolley to indicate orientation and depth of buried objects (see whole document).

The invention according to claims 1-5 differs from what is known in D1-D2 by an apparatus for collecting ground radar data with polarization information in that a pair of antennas supports the transmitter unit, sampler unit and the A/D converter. The transmitter antenna supports the transmitter unit and the receiver antenna supports the sampler unit and the A/D converter. The difference between D1 and D2 and the claimed invention is that the claimed invention in the analogue high frequency radar signals sent from the

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## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box V

transmitter unit can be received by the sampler unit and converted to digital signals before they are conveyed via a slip-ring arrangement to the control unit located in the main body for further processing. The teaching of the prior art as disclosed in the cited documents does not lead a skilled person to the invention. Therefore, the invention defined in the claims is not obvious to a person skilled in the art.

The invention according to claims 1-5 is thus novel and is considered to involve an inventive step. The invention also has industrial applicability.